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10/602,637

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Takaaki Kutsuna

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EXAMINER

PATTERSON, MARC A

ART UNIT

PAPER NUMBER

1794

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DELIVERY MODE

12/10/2008

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**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

## Office Action Summary

Application No.

10/602,637

Applicant(s)

KUTSUNA ET AL.

Examiner

MARC A. PATTERSON

Art Unit

1794

**-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --**  
**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period **will** apply and **will** expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply **will**, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 9/2/08.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 1,2,6 and 8-25 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1,2,6 and 8-25 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- 1) ☐ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO/SB/08)  
Paper No(s)/Mail Date \_\_\_\_\_.
- 4) ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date: \_\_\_\_\_.
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: \_\_\_\_\_.

**DETAILED ACTION**

**NEW REJECTIONS**

***Claim Rejections – 35 USC § 103(a)***

1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

2. Claims 1 - 2, 6, 8 – 22 and 24 – 25 are rejected under 35 U.S.C. 103(a) as being unpatentable over Gerdes et al (U.S. Patent No. 4,719,135) in view of Tashiro et al (U.S. Patent No. 3,704,229) and Huang et al (U.S. Patent No. 3,683,044).

With regard to Claims 1 - 2, 6, 8, 10 - 14, 17 - 18, 20, 22 and 24, Gerdes et al discloses a fuel system comprising a fuel vessel (fuel tank; column 1, lines 8 - 11) which is molded and therefore has molded parts (column 2, lines 41 - 45) constituted from a thermoplastic resin (high density polyethylene; column 2, lines 43 - 45) and a coating layer formed on the surface of the outside of the vessel body (coating of varnish, therefore on the molded parts; column 1, lines 51 - 55) formed by curing an epoxy resin composition comprising an epoxy resin and an epoxy resin curing agent (column 2, lines 50 - 55), the coating layer having a gasoline permeability coefficient of 2g mm/m day or less at 60 degrees Celsius and a relative humidity of 60% RH (fuel impermeability, therefore no permeability, therefore a barrier layer; column 3, lines 36 - 37). Gerdes et al fail to disclose an epoxy curing agent comprising a reaction product of metaxylylenediamine and an acrylic acid derivative which can form an amide by reacting with

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polyamine to form an oligomer and an epoxy resin having a glycidylamine part derived from metaxylylenediamine.

Tashiro et al teach a curing agent for epoxy which comprises a reaction product (column 1, lines 59 - 52) of metaxylylenediamine (column 2, line 14) and acrylic acid derivative (acrylic acid ester; column 1, line 63), which is used for the purpose of obtaining an epoxy that is curable in a wet state (column 1, lines 28 - 31). One of ordinary skill in the art would therefore have recognized the advantage of providing for the curing agent of Tashiro et al in Gerdes et al, which comprises an epoxy, depending on the desired properties of the end product.

Huang et al teach an epoxy resin having a glycidylamine part derived from metaxylylenediamine (column 2, lines 1 - 6) for the purpose of obtaining cured products having excellent heat resistance (column 5, lines 57 - 59). One of ordinary skill in the art would therefore have recognized the advantage of providing for the epoxy resin of Huang et al in Gerdes et al, which comprises an epoxy resin, depending on the desired heat resistance of the end product.

It therefore would have been obvious for one of ordinary skill in the art at the time Applicant's invention was made to have provided for a cured epoxy comprising a reaction product of metaxylylenediamine and acrylic acid derivative in Gerdes et al in order to obtain an epoxy that is curable in a wet state as taught by Tashiro et al and to have provided for an epoxy resin having a glycidylamine part derived from metaxylylenediamine in order obtain a cured product having excellent heat resistance as taught by Huang et al. The claimed aspect of the acrylic acid derivative being a derivative that can form an amide by reacting with polyamine to

form an oligomer is given little patentable weight as it is directed to a process limitation rather than a structural limitation.

The blending proportion of the epoxy resin to the epoxy resin curing agent falls in a range of 1.2 to 3.0 in terms of the ratio of active hydrogen to epoxy group (curing agent is utilized in stoichiometric excess of 1.5 molar excess; column 3, lines 65 - 68; column 4, lines 1 - 2); the claimed formula (1) would therefore be contained in the amount of 30% by weight.

With regard to Claim 9, because Gerdes et al disclose a fuel vessel which is coated, Gerdes et al disclose coating of an area rate of 100%.

With regard to Claims 15 - 16, the container disclosed by Gerdes et al is a tube (canister, therefore cylindrical, therefore having a tube body; column 1, lines 8 - 10).

With regard to Claim 19, Tashiro et al teach an acrylic acid derivative, as stated above; the mole ratio is therefore 0.3 to 0.97 in terms of amino groups to reactive function groups in the epoxy.

With regard to Claim 21, the thickness of the coating layer disclosed by Gerdes et al is in a range of 1 to 200 (column 4, line 55).

With regard to Claim 25, Gerdes et al also fail to disclose a number average molecular weight in a range of 80 to 4,000. However, because Gerdes et al disclose an epoxy resin, it would have been obvious for one of ordinary skill in the art to have provided, the routine optimization, for the selection of molecular weight depending on the desired weight of the coating.

3. Claim 23 is rejected under 35 U.S.C. 103(a) as being unpatentable over Gerdes et al (U.S. Patent No. 4,719,135) in view of Tashiro et al (U. S. Patent No. 3,704,229) and Watanabe et al (U.S. Patent No. 5,474,853).

Gerdes et al discloses a fuel system as discussed above. Gerdes et al fail to disclose an epoxy curing agent comprising a reaction product of metaxylylenediamine and an acrylic acid derivative which can form an amide by reacting with polyamine to form an oligomer and an epoxy resin having a glycidylamine part derived from metaxylylenediamine.

Tashiro et al teach a curing agent for epoxy which comprises a reaction product (column 1, lines 59 - 52) of metaxylylenediamine (column 2, line 14) and acrylic acid derivative (acrylic acid ester; column 1, line 63), which is used for the purpose of obtaining an epoxy that is curable in a wet state (column 1, lines 28 - 31). One of ordinary skill in the art would therefore have recognized the advantage of providing for the curing agent of Tashiro et al in Gerdes et al, which comprises an epoxy, depending on the desired properties of the end product.

Watanabe et al teach an epoxy resin having a glycidylamine part derived from bis(aminomethyl) - cyclohexane (column 7, lines 38 - 41) for the purpose of obtaining cured products having improved rigidity (column 7, line 5). One of ordinary skill in the art would therefore have recognized the advantage of providing for the epoxy resin of Watanabe et al in Gerdes et al, which comprises an epoxy resin, depending on the desired rigidity of the end product.

It therefore would have been obvious for one of ordinary skill in the art at the time Applicant's invention was made to have provided for a cured epoxy comprising a reaction product of metaxylylenediamine and acrylic acid derivative in Gerdes et al in order to obtain an

epoxy that is curable in a wet state as taught by Tashiro et al and to have provided for an epoxy resin having a glycidylamine part derived from bis(aminomethyl) - cyclohexane in order obtain a cured product having improved rigidity as taught by Watanabe et al. The claimed aspect of the acrylic acid derivative being a derivative that can form an amide by reacting with polyamine to form an oligomer is given little patentable weight as it is directed to a process limitation rather than a structural limitation.

The blending proportion of the epoxy resin to the epoxy resin curing agent falls in a range of 1.2 to 3.0 in terms of the ratio of active hydrogen to epoxy group (curing agent is utilized in stoichiometric excess of 1.5 molar excess; column 3, lines 65 - 68; column 4, lines 1 - 2); the claimed formula (1) would therefore be contained in the amount of 30% by weight.

#### ANSWERS TO APPLICANT'S ARGUMENTS

4. Applicant's arguments regarding the 35 U.S.C. 103(a) rejection of Claims 1 - 2, 6 and 8 - 22 as being unpatentable over Gerdes et al (U.S. Patent No. 4,719,135) in view of Tashiro et al (U.S. Patent No. 3,704,229) and Huang et al (U.S. Patent No. 3,683,044), of record in the previous Action, have been carefully considered but have not been found to be persuasive for the reasons set forth below.

Applicant argues, on page 11 of the remarks dated September 2, 2008, that the attached declaration utilizes the curing agent taught by Tashiro et al, prepared according to Example 1 of Tashiro et al, and that the claimed barrier properties are not obtained. The curing agent is used to cure Epiokte 828.

However, the declaration does not compare the claimed invention to the closest prior art, because Tashiro et al is not limited to Example 1; furthermore, as stated above, column 1, line 63 and column 2, line 14 of Tashiro et al disclose a reaction product of metaxylylenediamine and acrylic acid derivative, as claimed. Tashiro et al is also not limited to the curing of Epikote 828.

Applicant also argues, on page 12, that unexpectedly better results are obtained using the claimed epoxy and curing agent.

However, as stated above, the combination of Gerdes et al, Tashiro et al and Huang et al discloses the skeletal structure, as the claimed epoxy and curing agent are disclosed. Applicant also argues on page 15 that Gerdes et al does not disclose the claimed skeletal structure.

However, as stated on page 6 of the previous Action, the combination of Gerdes et al, Tashiro et al and Huang et al discloses the skeletal structure, as the claimed epoxy and curing agent are disclosed.

Applicant argues, on page 16, that Gerdes et al requires an amine - based curing agent, rather than the claimed curing agent.

However, as stated on page 6 of the previous Action, the claimed curing agent is taught by Tashiro et al; furthermore, Tashiro et al teaches that the curing agent is an amine based curing agent, because the curing agent has an amine number (column 3, line 52).

Applicant also argues, on page 17, that Gerdes et al do not disclose xylylenediamine.

However, as stated on page 7 of the previous Action, xylylenediamine is taught by Tashiro et al.



Applicant also argues, on page 21, that Tashiro et al and Huang et al are silent as to fuel barrier properties.

However, as stated on page 7 of the previous Action, Gerdes et al disclose fuel barrier properties, and it would have been obvious for one of ordinary skill in the art to have provided for the epoxy and curing agent of Tashiro et al and Huang et al in Gerdes et al.

Applicant also argues, on page 23, that Gerdes et al does not disclose the claimed skeletal structure in the claimed amount.

However, as stated on page 6 of the previous Action, the combination of Gerdes et al, Tashiro et al and Huang et al discloses the skeletal structure, in the claimed amount, as the claimed epoxy and curing agent are disclosed.

Applicant also argues, on page 24, that Watanabe et al do not teach a fuel system.

However, as stated above, a fuel system is disclosed by Gerdes et al.

Applicant also argues, on page 25, that bits and pieces have been selected, ignoring the epoxy in Tashiro et al and curing agent in Huang et al.

However, Tashiro et al is not limited to one epoxy, or Huang et al to one curing agent.

Applicant also remarks, on page 8, that it was stated in an interview that any reference to Tashiro et al as disclosing glycidylamine was made in error.

However, it is noted that upon further review, it does not appear that a reference to Tashiro et al as disclosing glycidylamine was made in a previous Action.

5. The declaration under 37 C.F.R. 1.132 filed September 2, 2008 is insufficient to overcome the 35 U.S.C. 103(a) rejection of Claims 1 – 2, 6 and 8 – 22 as being unpatentable

over Gerdes et al (U.S. Patent No. 4,719,135) in view of Tashiro et al (U.S. Patent No. 3,704,229) and Huang et al (U.S. Patent No. 3,683,044) because the declaration does not compare the claimed invention to the closest prior art.

The declaration utilizes the curing agent taught by Tashiro et al, prepared according to Example 1 of Tashiro et al, and states that the claimed properties are not obtained. The curing agent is used to cure Epiokte 828.

However, as stated above, the declaration does not compare the claimed invention to the closest prior art, because Tashiro et al is not limited to Example 1; furthermore, as stated above, column 1, line 63 and column 2, line 14 of Tashiro et al disclose a reaction product of metaxylylenediamine and acrylic acid derivative, as claimed. Tashiro et al is also not limited to the curing of Epikote 828.

6. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event,

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however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.


7. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Marc A Patterson whose telephone number is 571-272-1497.

The examiner can normally be reached on Mon - Fri 8:30 AM - 5:00 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Rena Dye can be reached on 571-272-1498. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

/Marc A Patterson/  
Primary Examiner, Art Unit 1794

<b>Application Number</b> 	<b>Application/Control No.</b> 10/602,637	<b>Applicant(s)/Patent under Reexamination</b> KUTSUNA ET AL.	
	<b>Examiner</b> MARC A. PATTERSON	<b>Art Unit</b> 1794	